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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,477	02/23/2004	Subbareddy Kanagasabapathy	52018	9336

21874 7590 02/07/2006

EDWARDS & ANGELL, LLP  
P.O. BOX 55874  
BOSTON, MA 02205

EXAMINER
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WALKE, AMANDA C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/786,477

Applicant(s)

KANAGASABAPATHY ET AL.

Examiner

Amanda C. Walke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/17/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

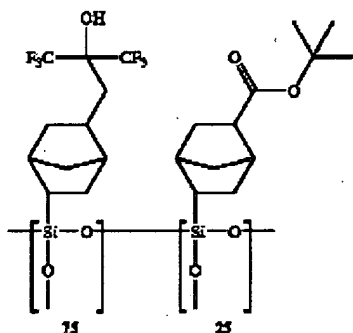
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 11-22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sooriyakumaran et al. (US 2002/0090572 A1). Example 2 of Sooriyakumaran exemplifies the synthesis of poly[2-hydroxy-3,3,3-trifluoropropylsilsesquioxane-co-5-(2-trimethylsilylethoxycarbonyl)norbornyl silsesquioxane] in a ratio of 90:10 (p. 0102-0105). See also examples 1 and 3-6. The said polymer was then admixed with a photoacid generator and a solvent to form a photoimageable composition (ex. 6; p. 0115). It is the examiner's position that the taught polymer has a ratio of fluorine to silicon of approximately 1.0, which meets the requirements of instant claim 1 and 2. Example 10 teaches a silicon substrate coated with an organic underlayer and baked. The said underlayer was overcoated with the composition of example 6 and baked to form a resist film. The said film was then exposed, baked and developed to form a high-resolution image (p. 0119). Examples 11 and 12 exemplify a negative working system (p. 0120-0122), thereby meeting the limitations of instant claim 7. It is the examiner's position that the taught organic underlayer of example 10 meets the limitations of a polymer composition coating layer set forth in instant claims 9 and 10.

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Sooriyakumaran further teaches that the polymer and copolymer of the taught invention may also comprise other suitable monomers such as hydroxystyrene to enhance development and etch resistance or silicon-containing monomer unit to enhance oxygen plasma etch resistance for bilayer applications. For use in 157 nm lithography, fluorinated comonomers are preferred (p. 0061). Although not exemplified, one of ordinary skill in the art would readily envisage a polymer similar to the poly[2-hydroxy-3,3,3-trifluoropropylsilsesquioxane-co-5-(2-trimethylsilylethoxycarbonyl)norbornyl silsesquioxane] exemplified in example 2 further comprising a silicon containing monomer or a fluorinated comonomer such as silicon-containing (meth)acrylate, silicon-containing styrene or fluorinated (meth)acrylic acid esters as taught by the disclosure of Sooriyakumaran (p. 0061).

3. Claims 11-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Barclay et al. (US 2004/0265754 A1). Barclay exemplifies the synthesis of a polymer having the following



formula:

(p. 0122-0126). The said polymer has a F:Si ratio of 3.

Example 6 exemplifies the use of a resist composition comprising the polymer of example 2 and a photoactive component. The said composition was coated onto of an underlayer composition (see ex. 1) and baked, exposed and developed to form an image (p. 0149-0152). Example 5 pertains to a negative working system (p. 0139-0148). See also p. 0058.

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The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

***Response to Arguments***

4. Applicant's arguments filed 11/17/2005 have been fully considered but they are not persuasive. Applicant has argued that the polymers taught by the above cited references do not teach having a ratio of 2.9 or less. With respect to the '572 reference, the examiner has pointed to teachings above wherein the reference clearly discloses and contemplates the use of a polymer meeting the instant claim limitations. With respect to the '754 reference, the examiner has cited a polymer taught to have a ratio of 3.0 or less, and one of ordinary skill in the art would have immediately envisage employing a polymer having a ratio of less than 3.0 such as 2.9, 2.8, etc, thus meeting the instant claim limitations.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

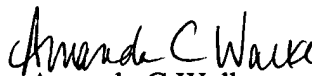
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Amanda C Walke  
Examiner  
Art Unit 1752

ACW  
February 3, 2006